

Connected and Autonomous Vehicles and Other Emerging Technologies

The Continued Transformation of Our Transportation System

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September 26, 2018



Technology Affecting (Improving?) Transportation

Mobility

1886: First modern car is built by Karl Benz; replaces horse and buggy



Safety

1950s: First VMS signs introduced



Safety

1996: GM introduces OnStar, the first connected car feature brought to market

Safety

1998: Mercedes-Benz introduces brake assist

Safety

2009: Google's Waymo begins testing its self-driving car project



1900

1950

1960

1970

1990

2000

2010

Today

Safety

1922: Automatic control of interconnected traffic lights was introduced



Mobility

1950s: Traffic light control detects the number of cars waiting at different parts of an intersection

Mobility; environment

1956: Interstate highway system commences



Mobility; safety; environment

1990s: Modern roundabouts emerge in the United States



Mobility

2005: Google Maps is released

Safety

2014: Tesla Autopilot is released, providing semiautonomous driver assist





1900



1913

5th Avenue, New York City



A. How will technology disrupt our future? B. How do we plan for the disruption?

CONNECTED



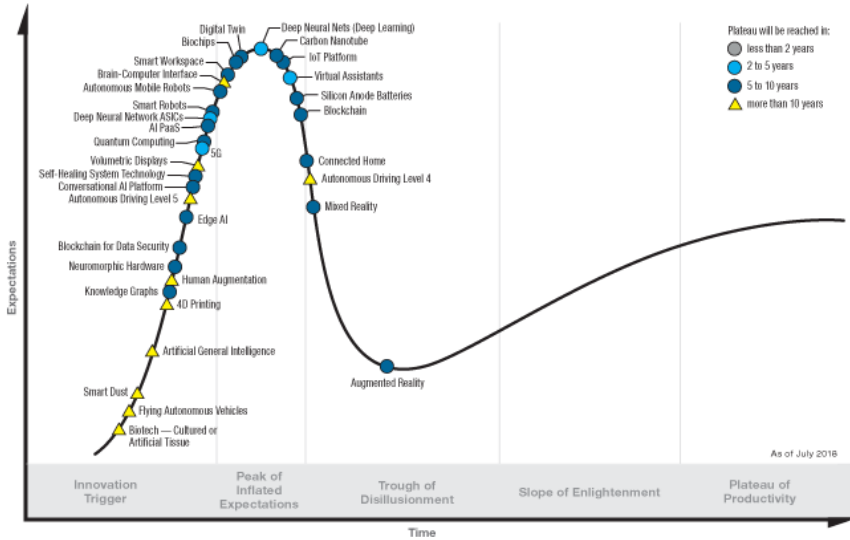
AUTONOMOUS



SHARED



Hype Cycle for Emerging Technologies, 2018



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What is the reality?

- **More Connected:** CV technology progresses rapidly to 85%, but AV stagnates
- **Somewhat Automated:** AVs are proven safe but only in certain lanes; about half of all vehicle have some sort of automation
- **Fully Autonomous and Shared:** either integrated or with competing fleets of TNC providers; 70% AV penetration





CV Uncertainties

- Future of the NHTSA rulemaking
- Cybersecurity and hacking concerns
- Evolving standards and uncertainties about OEM/public sector V2I integration
- Customer preference for connectivity





AV Uncertainties

- Liability, and the shift of responsibility from drivers to auto manufacturer
- Insurance
- Legislation
- Security
- Consumer preference





Presentations Today

- 1. Connected Vehicle Pilot Deployment Program**
Govind Vadakpat, United States Department of Transportation
- 2. Planning for Future Mobility In a Performance-Based World**
Steve Gayle, RSG
- 3. From Slow Roll to RoboTransit: Scenario Planning for Revolutionary Vehicle Technology**
Hannah Twaddell, ICF
- 4. MPO Automated Vehicle/Connected Vehicle Guidance**
Mark Reichert, Florida Department of Transportation
- 5. The Need for Counter Strategies**
Mike Wallace, Fehr and Peers

